CORRESPONDENCE: Respiratory research funding is inadequate, inequitable and a missed opportunity: the future requires well-funded, long-term, large-scale implementation science collaborations

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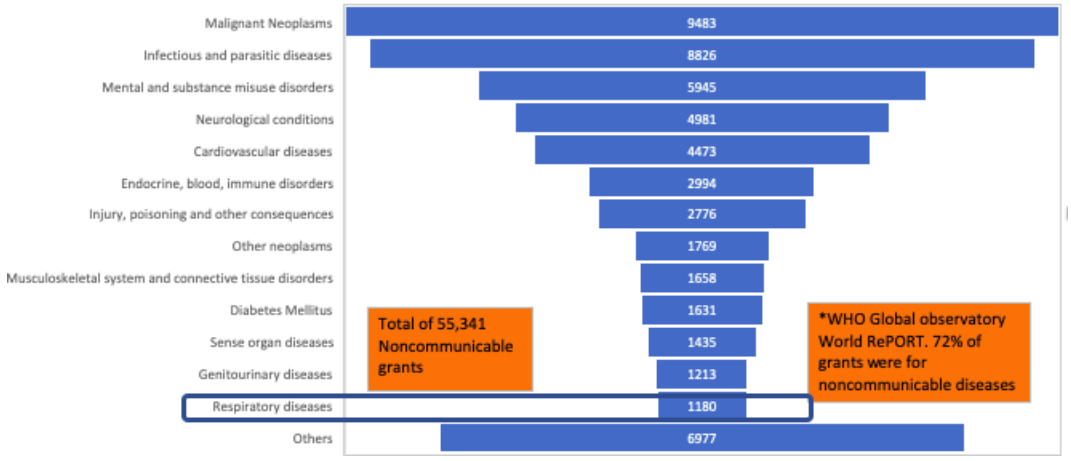
COVID-19 has placed respiratory medicine at the centre of health responses worldwide, but lung health was a major global challenge long before the current pandemic. More than one thousand people die of asthma every day, more than two thousand children die of pneumonia every day, and lung cancer is the most common cancer type in terms of incidence and mortality. The majority of this enormous burden has fallen on people in the global south and vulnerable populations in high income economies. They are diseases of poverty and disadvantage which further compound inequity by increased disability, loss of productivity, and catastrophic out-of-pocket health costs.[1] As a major driver of ill-health and poverty, the burden of respiratory disease remains a global rate-limiting step towards achieving health equity, economic growth, and Sustainable Development.[2]

Even before COVID-19, this burden was set to increase.[3] As urbanisation and climate change intensifies, global exposure to the key risk factors of tobacco smoking, indoor and outdoor air pollution from biomass fuels, traffic exhaust and occupational pollutants and allergens, is likely to increase. Infants and young children are at particular risk. The complex relationships between biological, socio-cultural and environmental causes of respiratory disease mean that there are many gaps in our understanding of how best to address them, especially in settings with poor and unequal availability of respiratory-competent health services.

Health financing is under greater pressure than ever, therefore research is needed to understand where there is resource that can be released or better used. Examples include unwarranted variation in medicines use including significant underuse of nicotine replacement therapy in treating tobacco dependence, overuse of bronchodilators and underuse of highly effective inhaled corticosteroids in asthma, and poor adherence to tuberculosis (TB) treatment. Yet if we look at the World Health Organization's (WHO's) latest analysis of research expenditure from 12 major funders, from 2012–2017,[4] where is respiratory disease?

Figure. Number of grants awarded for noncommunicable diseases 2012–2017[4]



Almost three-quarters of grants were for non-communicable diseases (NCD), but respiratory disease lies 13th in the NCD category list with just 2% of the total. By disease, TB lies 19th, asthma 27th; and chronic obstructive pulmonary disease 50th. Only 0.2% of research funding went to low income countries. Of the 450 grants received by African countries, grants to respiratory diseases were: 39 for TB; 7 for lower respiratory infections, and 2 for asthma. The situation in other regions is worse, only 19 grants went to south-east Asia of which only 2 were respiratory-related.

There has been a substantial mismatch between burden and research investment. This has not improved in over a decade. [5] Although necessarily limited by data availability, our analysis suggests that advocacy for respiratory research has not been successful in communicating the urgency or scale of the problem, or the potential impact of research investment. There is a need for an improved response at international and national levels. Some countries have started to invest in research to map the size of the problem and to reprioritise.[6] However, there is no global research strategy or feasible roadmap that aligns the interests of all stakeholders, governmental and commercial research funders, academic institutions, global and national health agencies, clinicians, patients, and the public. There is also a need to rebalance global funding towards low- and middle-income countries that bear

the greatest burden but have the least resource available. In the focus on transmissibility and epidemic preparedness that will likely follow once the COVID-19 crisis has resolved, we should not forget the contribution of tobacco dependence, air pollution, and nutrition to respiratory morbidity. To have lasting impact, respiratory health research needs to increasingly expand its focus and partnerships beyond the health sector and health systems.

More than ever, there is an urgent need for the respiratory research community to work more effectively with other stakeholders to increase recognition of the catastrophic burden of respiratory disease and to develop, test, implement and scale-up the necessary multiple and multi-sectoral strategies to turn the tide of respiratory ill-health. In its first Global Health Research call, the NIHR committed 12% of the total allocation to responsive respiratory research in DAC listed countries. This has triggered the formation of a Global Health Respiratory Network (GHRN), a meta-collaboration of UK respiratory research institutions and their global health partners.[7] The GHRN has created opportunities for synergistic working between research programmes across countries and the spectrum of respiratory diseases.

We call on all funders to review and publish their investment in research on respiratory health. We ask them to work synergistically to build on current activity and to share a roadmap, which minimises the risk of duplication and helps maximise the impact on health, wellbeing and economic growth.

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Declaration of interest

The authors declare they have no competing interests.

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